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REMARKS

Claims 1-14 and 19 have been cancelled. Accordingly, claims 15-18, 20 and 21 remain pending and under consideration in the application.

Restriction Requirement

In response to the restriction requirement, Applicants affirm the election of Group I, claims 1-12 and 15-21, drawn to a thermoformable acoustic sheet. Nonelected claims 13 and 14, drawn to a vehicle, have been cancelled. Applicants reserve the right to prosecute nonelected claims 13 and 14 and/or related subject matter in a divisional application.

Claim Objections

Claim 19 has been objected to under 37 CFR 1.75(c) for failing to further limit the subject matter of a previous claim. The objection has been overcome by canceling claim 19.

Rejections Under 35 U.S.C. §112

Claim 8 has been rejected under 35 U.S.C. §112, second paragraph.

This objection has been obviated by cancellation of claim 8.

Provisional Double Patenting Rejection

Claims 1-12 and 15-21 have been provisionally rejected under the judicially created doctrine of double patenting over claims 2-10, 12 and 15-21 of copending Application No. 10/437,356.

This rejection has been overcome by the attached Terminal Disclaimer which complies with 37 CFR 3.73(b).

Rejections Under 35 U.S.C. §102

Claims 1, 7 and 11-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Copperwheat (U.S. Patent No. 6,008,149).

This rejection has been obviated by cancellation of claims 1, 7 and 11-12.

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Rejections Under 35 U.S.C. §§102/103

Claims 4 and 5 stand rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Copperwheat (U.S. Patent No. 6,008,149).

This rejection has been obviated by cancellation of claims 4 and 5.

Rejections Under 35 U.S.C. §103

Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Copperwheat. This rejection has been obviated by cancellation of claim 9.

Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Copperwheat as applied to claim 1 and further in view of O'Donnell et al. (US 2003/00823860). This rejection has been obviated by cancellation of claim 8.

Claims 2, 10 and 15-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Copperwheat (U.S. Patent No. 6,008,149) as applied to claim 1, and further in view of Ramesh et al. (US 2003/0219582).

Copperwheat discloses a thermoformable composite having at least one variable compression fabric layer capable of assuming variable thickness when subjected to molding under heat and/or pressure, and at least one formable fabric layer which upon molding under heat and/or pressure possesses a relatively high degree of strength and stiffness. Copperwheat teaches that the layers may be assembled by stacking the layers one upon the other and combining them together. In certain embodiments, adhesive layers 11, 14 are employed for "enhancing contact and cohesion between formable fabric layers (5) and (8) and variable compression layer (2)."

Ramesh et al. discloses sheet materials that are useful as sound and moisture barriers for flooring underlayment.

The Examiner's position is that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify certain embodiments of Copperwheat by employing a polyolefin film layer as the adhesive layer 11, 14 to impart impermeability to an automobile liner, it being "highly advantageous to an article for use in automobiles as vehicles are often exposed to the elements."

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It is respectfully submitted that the prior art does not provide any teaching or suggestion that would motivate one having ordinary skill in the art to utilize the impermeable vapor barrier of Ramesh et al. in the composite articles disclosed by Copperwheat.

In a first general embodiment (described at column 3, lines 17-27), Copperwheat discloses the use of separate layers that are "passed through a compression mold having a cavity whose shape is the form of the headliner" and "subjecting [it] to an elevated temperature" which causes "binder fibers in the separate layers [to] soften and/or melt and intermingle under heat and/or pressure and upon mold release the fibers will cool and harden and bond the layers together."

In a second general embodiment (described at column 3, line 28 through column 4, line 7), Copperwheat discloses a composite article in which layers of formable fabric and variable compression fabric are formed into a composite prior to fabrication of an article using adhesive layers 14. "Automobile headliners or trunk liners can then be formed by passing the composite material through compression molding means, subjecting the composite material to elevated temperature and/or pressure for a time sufficient to have the composite material assume the shape of the mold's cavity."

In a third general embodiment (described at column 4, lines 9-20), Copperwheat discloses a composite article in which the compression fabric layers and formable layers are bonded together by mechanical needle-punching.

In accordance with certain alternatives (described at column 4, lines 38-47), bonding between the layers may be "enhanced by such mechanical means as needle-punching and/or by adhesive means such as spray powder bonding, the use of liquid dispersions/solutions, flame lamination, and/or interposition of an adhesive layer and combinations thereof."

The only specifically illustrated example (described at column 4, line 64 through column 5, line 28) has "no adhesive layer between" the variable compression fabric layer and the formable fabric layer. Instead, the overlying layers are "passed through an oven which heats the product to at least 150°C. which softens or melts the binder fibers to allow it to thermally bond to the other fibers in the blend."

The first and third general embodiments, as well as the example, do not include any adhesive means between the variable compression fabric layers and the formable fabric layers.

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In these embodiments, bonding of the layers relies on thermoplastic bonding of the fibers in one layer with the fibers in an adjacent layer or on physical entanglement of fibers from adjacent layers (e.g., by needle-punching). Clearly, the use of an impermeable layer between the formable fabric layer and the variable compression fabric layer is inconsistent with these embodiments.

Among the bond enhancing means disclosed at column 4, lines 43-47, needle-punching spray powder bonding, the use of liquid dispersion/solutions and flame lamination do not suggest disposing an impermeable polymer film layer between adjacent fibrous layers, as required by the claims. Disposing an impermeable polymer film between the variable compression fabric layer and the formable fabric layer of Copperwheat would interfere with thermobonding of fibers between the layers. Use of an impermeable polymer film layer would also be inconsistent with bonding by physical entanglement of fibers in adjacent layers (e.g., by needle-punching). Thus, it is only the second general embodiment (described at column 3, line 28 through column 4, line 7) in which the use of an adhesive layer (11, 14) disposed between the variable compression fabric layer and the formable fabric layer is taught or suggested.

However, Copperwheat does not suggest that adhesive layers 11, 14 are a film of any type. Copperwheat also does not suggest that layers 11, 14 are thermoplastic. Finally, Copperwheat does not suggest that adhesive layers 11, 14 are impermeable.

To the contrary, the Copperwheat patent specification appears to teach against using adhesive layers 11, 14 that are impermeable. The patent specification (at column 3, lines 51-53) states that adhesive layers 11, 14 are used for "enhancing contact and cohesion between formable fabric layers (5) and (8) and variable compression layer (2)." Thus, Copperwheat is teaching that the adjacent layers are already in contact (i.e., touching each other), and that such contact is enhanced (i.e., increased) by the adhesive film layer. It is respectfully submitted that an impermeable polymer film disposed between the variable compression fabric layer and the formable fabric layer would not enhance contact between the two layers (i.e., it would not increase touching between the two layers). Thus, the use of an impermeable polymer film layer between the variable compression fabric layer and the formable fabric layer would be contrary to, and inconsistent with the teachings of Copperwheat. Accordingly, one having

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ordinary skill in the art would not have found it obvious to use film layer 18 of Ramesh et al. as adhesive layer 11, 14 of Copperwheat, since such film would not enhance contact between the layers as taught by Copperwheat.

Further, Ramesh et al. do not suggest that film layer 18 is useful for other applications, and do not suggest that film layer 18 is disposed between two fibrous layers. More importantly, Ramesh et al. do not teach that film layer 18 is a useful adhesive layer for "enhancing contact . . . between formable fabric layers . . . and [a] variable compression layer." Further, those having ordinary skill in the art would have understood that the vapor impermeable film of Ramesh et al. would not fulfill the purpose of adhesive layer 11, 14 of Copperwheat, i.e., those of ordinary skill in the art would have known that an impermeable film is not capable of enhancing contact between adjacent fibrous layers.

Finally, although the prior art references do not themselves provide any teaching or suggestion that would provide motivation for utilizing the Ramesh et al. impermeable films as an adhesive layer for bonding together the fibrous layers of Copperwheat, and although Copperwheat actually teaches against an impermeable barrier, since it would not perform the function of enhancing contact between adjacent fibrous layers, the Examiner has nevertheless suggested that those having ordinary skill in the art would somehow disregard the teaching of Copperwheat and somehow find motivation based on a desire to provide a vapor or weather resistant layer within an automobile headliner. It is respectfully submitted that there is absolutely no evidence on record suggesting that moisture or vapor barriers can be advantageously employed in an automobile headliner. The teaching or suggestion which provides motivation for a modification to the prior art must be found in the prior art itself. It is not enough that the Examiner speculates that those having ordinary skill in the art might find it desirable to incorporate an impermeable barrier in an automobile headliner. Further, while automobile floor coverings, and even seat coverings could conceivably be exposed to snow and/or rain if the vehicle windows are left open, it is entirely inconceivable that an automobile headliner would be exposed to rain and/or snow, since rain and snow fall downwardly, not upwardly onto an automobile headliner.

Ramesh et al. disclose that another function of film layer 18 is to provide sound attenuation, which is the motivation for including an impermeable film in the claimed

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invention. However, Ramesh et al. do not recognize this as a primary benefit, and do not correlate sound attenuation properties with film impermeability, a necessary characteristic of a vapor or moisture barrier. Further, Ramesh et al. do not teach or suggest that the sound attenuation properties of an impermeable polymer film could be advantageously employed in an entirely different structure in which the film is disposed between fibrous layers rather than attached to a polymer foam layer. Regardless, even if one having ordinary skill in the art were to somehow contemplate using an impermeable film in the fibrous composite materials described by Copperwheat in order to attenuate sound transmission, the person of ordinary skill in the art would be discouraged by the teachings of Copperwheat which suggest an adhesive layer for the purpose of enhancing contact between the fibrous layers.

For the above reasons, it is respectfully submitted that claims 15-18, 20 and 21 are patentable over Copperwheat in view of Ramesh et al.


Claims 3 and 6 stand rejected under 35 U.S.C. §103(a) as unpatentable over Copperwheat in view of Walters et al. (U.S. Patent No. 4,581,272). This rejection has been obviated by cancellation of claims 3 and 6.

CONCLUSION

In view of the above amendments and remarks, it is respectfully submitted that the application is in condition for allowance and notice of the same is earnestly solicited.

Respectfully submitted,

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